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THESIS

NATURE AND EXTENT OF SUBCONTRACT COMPETITION
CONDUCTED BY
PRIME CONTRACTORS AND SUBCONTRACTORS

by

Stephen Everett Smith

June 1984

Thesis Advisors: D. V. Lamm
J. E. Ferris

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This study found the Government's definition of competition was widely acceptable and could be used as a common definition, that both prime contractors and subcontractors were extremely motivated to compete when consistent with their corporate goals and that they generally achieved a large amount of subcontract competition. Finally, there are specific actions the Government can take to increase the amount of subcontract competition.

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Nature and Extent of Subcontract Competition Conducted by Prime Contractors and Subcontractors

by

Stephen Everett Smith
Lieutenant, Supply Corps, United States Navy
B.S., University of Hartford, 1973

Submitted in partial fulfillment of the
requirements for the degree of

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I. INTRODUCTION

A. OBJECTIVES OF THE RESEARCH

Through United States' history, it has been public policy for the Federal Government to promote competition to the maximum practicable extent in its acquisition of goods and services. Much attention has been drawn to the attempts and success of the Government in fulfilling this policy and much effort has been expended to implement this policy. The focus of much of this attention and effort has been in the area of competition directly conducted by the Government, i.e., how much is conducted between the Government and its prime contractors. Several studies have indicated that as much as 50% of prime contract funds are passed through the prime to its subcontractors. In turn, these subcontractors will generate a certain amount of competition in obtaining the goods and services needed to fulfill their contracts with prime contractors.

There are several situations where it is not possible nor practicable for the Federal Government to obtain competition. These situations occur where the Government is forced to contract with a sole source and also where the Government will contract on a follow-on basis to a single source who won previous competitions for the product. Despite attempts to increase the amount of competition

conducted by the Government, there will always be a significant number of non-competitive awards. In these cases, it may be appropriate to concentrate on the amount of subcontract competition. Although there has been some interest and emphasis in the amount of subcontract competition conducted by prime contractors, there has not been much investigation into the extent and nature of competition at the first and second tier subcontractor levels in the performance of these non-competitive contracts. This study will examine the definitions of competition used by the Government and industry to see if there is a common definition that could be readily used by both parties. It will also attempt to determine the characteristics of this competition.

B. RESEARCH QUESTION

The basic research question for this study is, "What are the nature and extent of competitive actions by Department of Defense (DOD) prime contractors and their subcontractors in 'non-competitive' acquisitions of major weapon systems?"

The following subsidiary questions were formulated to further define the basic research question:

How much is ultimately awarded on a competitive basis by these prime contractors and their subcontractors?

What types of actions do prime contractors and their subcontractors consider to be competitive and are these

actions compatible with the Government's definition of competition?

Is there a working definition of competition that can be used to describe "effective competition" and would this definition be consistent with the Government definition of competition?

What is current DOD policy on prime contractor's competing among their subcontractors and does this policy have an effect on the amount of competition conducted by prime contractors?

What motivates prime contractors and their subcontractors to compete their requirements and does current DOD policy reinforce these motivations?

C. SCOPE, LIMITATIONS, AND ASSUMPTIONS

The study was limited to DOD prime contractors of major weapon systems who were awarded their current contracts non-competitively. The study of subcontractors was limited to the subcontractors of these same prime contractors who were performing work identified in the "Subcontracted Items" block of DD Form 633, Contract Pricing Proposal. The work included in this study consisted of major components and subsystems integral to the weapon systems, and major support systems used to test and evaluate the weapon system. Service subcontracts and subcontracts valued less than $500,000.00

were not included in this study. Also, no attempt was made to assess the impact of socio-economic programs such as the Small and Disadvantaged Business program except to the extent that these programs may have been mentioned or discussed by either prime or subcontractors. A questionnaire (discussed in the next section) was used to gather subcontractor information. There may be some bias in this information in that over 90% of the responding subcontractors were also current DOD prime contractors. This percentage was greater than expected. Once the researchers discovered this, it was felt that some bias could be introduced. It is felt, however, that this bias is not significant because: 1) many respondents specifically noted they were responding as subcontractors, and (2) the positions they took in several of their answers could be clearly related to an expected subcontractor position. It is assumed that the reader is reasonably familiar with standard DOD contracting concepts, procedures, and terminology.

D. RESEARCH METHODOLOGY

The research methodology utilized in this study consisted primarily of three basic components: (1) the use of personal interviews, (2) review of subcontract files, and (3) the use of questionnaires. The interviews were conducted with prime contractor executives involved in contracting and subcontracting. The questionnaires were sent to selected subcontractors. Two DOD prime contractors were selected according to the

following criteria: prime contractors of major weapon systems whose current contracts were non-competitively awarded. The scope of work contained a large potential for subcontracting, prime contractors were willing to discuss these contracts and their subcontracting processes for this study, and the necessary data could be identified to the contracts under study. Five major weapon system programs were selected and the subcontractor files reviewed for the study were selected from these five programs. The criteria for selecting the subcontractors to receive a questionnaire were: one of the primes' subcontractors, the subcontract value was greater than $500,000.00, the nature of the subcontractor's work contained a large potential for further subcontracting to the second tier level, and the prime was willing to allow the mailing of the questionnaire to the subcontractor. The questions put to both prime and subcontractors appear in Appendices A and B, respectively. Finally, dollar amounts were used to measure the extent of competition, except where noted, rather than the number of competitive actions, since the researcher felt that this data would be both more readily available and a better reflection of the economic impact of the competition.

E. REVIEW OF THE LITERATURE

Although recently receiving more attention, there is not yet much current information on this subject. The

available literature is limited to a few student theses and Government sponsored studies.

The Office of Federal Procurement Policy (OFPP) recently completed a study of competition in the award of subcontracts by prime contractors. The basic findings of this study were that the amount of subcontract competition can and should be increased. The study found that there was not any need for a comprehensive subcontract data collection system and that existing systems were sufficient [Ref. 1: pp. 20-21].

The Army Procurement Research Office (APRO) issued a study entitled "Subcontract Competition" that concluded that a substantial portion of defense dollars are redistributed competitively through subcontracts [Ref. 2: p. 25]. The high number of constraints that can affect subcontract competition causes a great deal of variability in how much subcontract competition is conducted from program-to-program. The study also concluded that while the amount of subcontract competition could be increased, the number of constraints and unique program requirements would preclude establishing a single overall standard [Ref. 2: pp. 25-26].

A Master's Thesis titled "The Need to Increase Competition at the Subcontract Level" by LT David A. Capizzi concluded that the actual extent of subcontract competition is unknown due to lack of a reporting system and common definitions of competition used by the Government and industry

[Ref. 3: p. 77]. Prime contractors, subcontractors, and Government policies exert pressure that makes increasing subcontract competition difficult. While the Government's systems for encouraging subcontract competition are not always effective, there are other ways the Government can influence the amount of subcontract competition conducted by the prime contractor. Until the actual amount of subcontract competition can be measured, it is not feasible to recommend that it be increased. Capizzi concludes that if it is deemed necessary to increase subcontract competition, then a reporting system must be developed to allow measurement of subcontract competition and the best way of increasing it would be to develop a clause requiring all subcontracts be awarded on a competitive basis [Ref. 3: pp. 77-81].

F. DEFINITIONS

The definitions of subcontractors and subcontracts used in this study were obtained from the Federal Acquisition Regulation (FAR). The FAR defines a subcontract as:

> ...any contract...entered into by a subcontractor to furnish supplies or services for performance of a prime contract or a subcontract. It includes but is not limited to purchase orders, and changes and modifications to purchase orders. [Ref. 4: 44.101]*

FAR also defines a subcontractor to be "any supplier, distributor, vendor, or a firm that furnishes supplies or

---

*All references to the Federal Acquisition Regulation and the Department of Defense Supplement to the Federal Acquisition Regulation indicate the appropriate section rather than page number.

services to or for a prime contractor or another subcontractor" [Ref. 4: 44.101].

The term major subcontract was used to define the type of subcontracts to be reviewed for this study. A major subcontract was any subcontract entered into by the prime contractor for the acquisition of hardware (major subsystems or components). This hardware must have been either integral to the weapon system or necessary to support its production. Furthermore, the total value of the subcontract had to be greater than $500,000.00.

The definitions of competition used in this study were based upon the Government definition of price competition contained in the FAR:

> Price competition exists if--
>
> (i) offers are solicited;
>
> (ii) two or more responsible offerors that can satisfy the Government's requirements submit priced offers responsive to the solicitation's expressed requirements;
>
> and (iii) these offerors compete independently for a contract to be awarded to the responsible offeror submitting the lowest evaluated price. [Ref. 4: 15.804-3(b)(1)]

Furthermore, FAR states that even though the above conditions exist, price competition cannot be assumed to have been adequate if it is found that:

> (i) the soliciation was made under conditions that unreasonably deny to one or more known and qualified offerors an opportunity to compete;
>
> (ii) the low competitor has such a decided advantage that it is practically immune from competition; or

(iii) there is a finding, supported by a statement of the facts and approved at a level above the contracting officer, that the lowest price is unreasonable. [Ref. 4: 15.804-3(b)(2)]

Design or technical competition is defined in the Department of Defense Supplement to the Federal Acquisition Regulation (DOD FAR Supplement) as "to be present when 2 or more qualified sources of supply are invited to submit design or technical proposals, with the subsequent contract award based primarily on this factor, rather than on a price basis" [Ref. 5: 4.671-5(c)(ii)(B)].

Follow-on after either design or technical competition or after price competition is also defined in the DOD FAR Supplement as being subsequent contract awards or supplemental agreements for new procurements of the same item to a source initially established in a prior year as a result of either design or technical competition or price competition [Ref. 5: 4.671-5(c)(ii)(C)].

Major weapon system acquisition programs are programs that: "1) are directed at and critical to fulfilling an agency mission, 2) entail the allocation of relatively large resources, and 3) warrant special management attention" [Ref. 6: p. 3].

G. ORGANIZATION OF THE STUDY

Chapter II will be a discussion of the major weapon systems acquisition process and how the various types of non-competitive contract situations develop. The basic

theory of competition will be discussed as well as Federal Government competition policy in both prime and subcontract awards. Chapter III will be a presentation of the prime contractors' and subcontractors' definitions of competition, which will be compared to the Government's definition to determine if there is one definition that would be acceptable for common use. Chapter IV will state the motivations and disincentives for prime contractors to obtain competition in their subcontract management, as well as the methods they use to achieve subcontract competition. Chapter V will be structured essentially the same as Chapter IV, with the subcontractors being the subject of analysis. Chapter VI will assess the policy implications for the Government given the findings at the prime contractor and subcontractor levels. Chapter VII will present the conclusions and recommendations that follow from the previous analysis.

II. FRAMEWORK AND BACKGROUND

A. INTRODUCTION

This chapter will establish the conceptual framework for the role of competition in the major weapon systems acquisition process. The chapter begins with a description of the major weapon system acquisition process. The two types of competition, design/technical and price, are discussed, and then relevant economic theory on market structure is presented. Government competitive policy with respect to both prime contractors and subcontractors is examined. The relationships among the Government, prime contractors, and subcontractors are examined to determine how Government policy is implemented through these relationships. Specific Government programs for achieving competition are presented. Finally, the five major weapon systems included in this study are described.

B. MAJOR WEAPON SYSTEM ACQUISITION PROCESS

Overall policy and guidance for the acquisition of major weapon systems by executive branch agencies is contained in Office of Management and Budget (OMB) Circular No. A-109, "Major System Acquisitions." The general policy established in this Circular is aimed at "assuring the effectiveness and efficiency of the process of acquiring major systems" [Ref. 6:

p. 3]. This policy is implemented for the DOD in DOD Directive 5000.1, "Major System Acquisitions," and DOD Instruction 5000.2, "Major System Acquisition Procedures." DOD Directive 5000.1 sets overall acquisition management principles and objectives to be followed in the acquisition of major systems, identifies the major decision points, and assigns responsibilities for ensuring the policies are followed. The actual procedures and required documentation for managing DOD major systems are contained in DOD Instruction 5000.2.

Development of a major weapon system is initiated during the Planning, Programming, and Budgeting System (PPBS). Once initiated, the acquisition cycle consists of four main phases, concept exploration, demonstration and validation, full-scale development, and production and deployment. During the PPBS process, the military services identify deficiencies in their ability to carry out assigned responsibilities. Some of these deficiencies require new and extensive programs to correct. These deficiencies are subsequently referred to as "mission needs."

The document which defines a particular mission need is the Justification for Major System New Starts (JMSNS). The JMSNS is submitted to the Secretary of Defense with the Program Objective Memorandum (POM). Secretary of Defense approval of the program is documented by the Program Decision Memorandum (PDM), and authorizes the new program to be included in the DOD budget.

This approval allows the service component to start the concept exploration phase. During this phase, alternative concepts for meeting the need are solicited from industry, in-house Research and Development centers, and non-profit institutions such as universities. Proposed concepts will include estimates of their life cycle costs, development schedule, and performance. The various concepts are then evaluated to select the most promising concept(s) for continuation. The competition in this phase is primarily design oriented; trying to determine the best technical approach to solve the mission need. The results are summarized in the System Concept Paper (SCP), which is submitted to the Secretary of Defense. The SCP will include the concepts selected for further development, the reasons for elimination of other concepts, and the acquisition strategy for the selected concepts. The acquisition strategy should include, in addition to other basic management concepts, general evaluation criteria, the methods for obtaining and maintaining competition during the acquisition cycle, possible tailoring of the acquisition cycle, and the proposed contract type for each of the phases.

Approval to start the next phase, demonstration and validation, is granted by the Secretary of Defense Decision Memorandum (SDDM) at Milestone 1 and is based upon the information contained in the SCP. The SDDM validates the requirement and also establishes cost, schedule, and performance

thresholds and objectives to be met and reviewed at the next decision point. It also approves the acquisition strategy to be followed, and establishes a budget limit for the program. The basic purpose of the demonstration and validation phase is to validate the preliminary designs of the competing systems for the full-scale development phase. Prototypes can be used to demonstrate the validity of each system concept and the feasibility of their respective designs.

The results of the demonstration and validation phase are documented in the Decision Coordinating Paper (DCP) and when necessary, the Integrated Program Summary (IPS). The DCP is a summary document containing much the same type of data as the SCP, with some sections in greater detail. These sections describe the selected alternative, identify the technological risks of that alternative, and describe the acquisition strategy. If more detailed information is required for evaluation of the alternatives, an IPS is submitted. The IPS contains more specific program information, as well as a comprehensive summary of the program. These documents are submitted to the Secretary of Defense, who will then issue the Milestone II decision in a SDDM. A favorable Milestone II decision grants approval for the program to enter into full-scale development. Design competition will normally be conducted up to the Milestone II decision, with one design selected to enter full-scale development. It is possible for design competition to continue

through the full-scale development phase if it is deemed cost effective for the Government to do so. For the purposes of this description, it will be assumed that design competition ended at Milestone II.

The full-scale development phase is characterized by an iterative design-retest-design process that will result in a final product design. This phase may actually be comprised of three sub-phases: engineering, prototype, and pilot production. The objective of this phase is "the demonstration and documentation of a cost-effective, operationally suitable, reliable, and maintainable production-engineered system that meets the mission needs" [Ref. 7: p. 2-55].

The acquisition strategy must be updated at this point. In addition to incorporating any changes identified in the SDDM or by other higher authority, it is important to review the competitive situation. The prime contractor will want to maintain or create a sole source situation, and historically this situation does result. Although the design competition is over, it is possible to introduce price competition into the production phase instead of having a sole source contractor, or to offset the potentially non-competitive effects of having a sole source contractor. This can be accomplished by planning for dual production sources or by the identification of high cost components to be procured competitively by the Government and supplied to the prime as Government Furnished Equipment [Ref. 7: pp. 2-55, 2-56].

If these methods are to be used in the production phase, planning for them should begin as early as possible.

Normally, the production decision, Milestone III, is delegated by the Secretary of Defense to each of the Secretaries of the Military Departments. The objective of the production and deployment phase is to field a fully operational system. This includes providing technical documentation, training and support facilities, and Integrated Logistics Support.

C. THEORY OF COMPETITION

1. Role of Design/Technical Competition

The typical major weapon system is extremely complex. In the early stages of the acquisition process, extensive technical effort is required to design a system that will meet all objectives. The overall objectives for the system are to meet: mission need, cost, schedule, readiness, and affordability. There are also many support considerations and tradeoffs that must be made during system design. These include maintainability and reliability, logistical requirements, personnel manning levels and attendant skill levels, system survivability/vulnerability tradeoffs, and life cycle costs [Ref. 7: p. 2-45]. A concerted design effort is necessary to fully integrate all of these objectives to the maximum extent. Since there are many possible combinations of these objectives, industry wide design competition is the best way to identify the maximum number of possible concepts.

The subsequent evaluation of these alternative concepts will identify the best one [Ref. 8: p. 26]. Once the system design is selected, a primary concern becomes to obtain that system for the lowest possible price.

2. Pricing Theory in Commercial Markets

Modern economic theory holds that the market structure determines the price of products in that market. There is a spectrum of different market structures in our economy, ranging from perfect competition to monopoly.

The best market structure to establish the lowest price is the perfectly competitive market. This type of market is characterized by large numbers of firms producing homogeneous products. Economists have defined perfect competition to occur only when all of the following four conditions are present: "No participant in the market can influence price; output must be homogeneous; resources must be mobile; and there must be perfect knowledge" [Ref. 9: p. 276]. In reality, perfect competition does not exist, although most commercial markets may contain some, but not all, of the above conditions.

Monopoly is at the opposite end of the market spectrum. The basic market condition necessary for a monopoly is that there must be only one seller [Ref. 9: p. 280]. This market is characterized also by barriers to entry and exit from the market and imperfect market knowledge. It is held that, when compared to a perfectly competitive market, prices

will be higher and output will be lower in a monopolistic market [Ref. 9: p. 311].

In between these two extremes, there are two other types of market structure, monopolistic competition and oligopoly. Monopolistic competition is characterized by a large number of firms making products that are relatively close substitutes. The firms differentiate their products through advertising. There are three tactics the firms can use to change their sales: they can change their prices, change their product, or change their advertising expenditures [Ref. 9: pp. 315-316]. Firms in this market will tend to produce less and charge higher prices than in a perfectly competitive market, but will still produce more at a lower price than a monopoly [Ref. 9: p. 328]. Oligopoly is a common market form in our economy and is characterized by a small number of firms that are quite interdependent. Any changes in price or output by one firm will affect the other firms [Ref. 9: p. 333]. These firms will generally use advertising to change sales rather than price changes, so prices tend to be more stable. Prices will generally be higher and output will be less in an oligopoly than under perfect competition. The firms will also incur relatively high advertising expenses. Finally, oligopolistic firms will enjoy higher profits than perfectly competitive firms [Ref. 9: pp. 358-359].

The prime contractors and subcontractors operate in one of these three types of market structure: monopoly,

monopolistic competition, or oligopoly. Therefore, competition will play a role in determining the prices of their products and the cost of their purchased goods and services.

3. Market for Major Weapon Systems

The market in which major weapon systems are procured is unique, with many differences between it and commercial markets. Some of these differences are: how the market size is determined, how the price of the product is determined, and the fact that there is only one buyer in the market [Ref. 10: pp. 37-38]. The overall size of the market is determined by Congress through the appropriation process, rather than supply and demand. The price of the weapon system is determined more by the costs incurred, rather than market forces. The Government is the only buyer and frequently becomes committed to one source as a result of the major weapon systems acquisition process. Also, due to the large capital investment required, the Government often assists the contractor in making the financial investment. This situation creates a "bilateral monopoly," defined as being a market in which a single buyer and a single seller exist interdependently; neither can survive without the other" [Ref. 10: p. 38].

Another unique market structure is a duopoly, where there are only two sellers in the market [Ref. 11: p. 15-12]. This is usually an artificial market, created and supported by the Government. This sort of market can occur

as a result of the Government decision to create a second production source for a major weapon system [Ref. 11: p. 15-12].

If the government wants to create this type of market, it must be prepared to incur considerable front-end costs. These costs result from either extended design competition or, in the case of dual production sources, heavy investment costs to qualify two sources. There are five categories of start-up costs for dual sourcing: cost of technological transfer, special tooling, higher product costs initially due to learning by the new source, additional Government administrative costs to deal with two sources, and potential additional logistics costs caused by supporting two slightly different systems [Ref. 12: p. 2-11]. It is hoped that cost savings caused by the resulting competition will offset these start-up costs. There is some risk that savings may not be realized and that the start-up costs will not be recovered [Ref. 12: p. 2-10].

D. GOVERNMENT COMPETITION POLICY

1. Government Competition Policy

Overall Government policy is that competition shall be utilized to the maximum practical extent in the acquisition of goods and services. This policy is reflected in the acquisition of major weapon systems by the policy that Federal Agencies will allow competition in the early stages of the

acquisition process by considering alternative design concepts to fulfill mission needs [Ref. 6: p. 3]. An express management objective of the major weapon systems acquisition process is to "depend on, whenever economically feasible, competition between similar or differing system design concepts throughout the entire acquisition process" [Ref. 6: p. 4]. Furthermore, an acquisition strategy must be tailored to the program that must address, among other considerations, "methods for obtaining and sustaining competition" [Ref. 6: p. 5].

This policy is also reflected in the FAR by the preference for the most competitive method of procurement, formal advertising [Ref. 4: 14.103-1(a)]. There are four criteria that must be applied to determine if this method of procurement is proper. These are: the dollar amounts of the contract must be large enough to justify the expense, adequate specifications are available, adequate numbers of sellers in the market, these sellers must want the business and bid competitively for it, and there must be adequate time available [Ref. 13: p. 97]. Based upon these criteria, formal advertising is an inappropriate method of obtaining major weapon systems. Adequate specifications are not available, nor is there adequate competition in the market [Ref. 12: p. 1.4]. When formal advertising cannot be utilized, and negotiation must be used, "negotiated contracts shall be awarded on a competitive basis to the maximum practical extent"

[Ref. 4: 15.105]. This process is more appropriate for major weapon systems procurement and competition is possible.

Recently there has been increased emphasis on competition within the Executive Branch. In a recent Executive Order, the President directed more effective procurement by "enhancing effective competition and limiting non-competitive actions" [Ref. 14: p. 1].

Recent judicial action has also emphasized that the requirement for competition, as stated in the Defense Acquisition Regulations, is a legal requirement [Ref. 15: p. 1]. In a recent case, the Department of the Navy was cited for bad faith because it had not followed court orders to stimulate competition. While the court agreed with the Navy's initial sole source justification, it noted that the exception to formal advertising used by the Department of the Navy required that the Contracting Officer take steps to foster competition in subsequent procurements. The Court found that the Navy had not taken these steps. This avenue may be used increasingly by contractors to protest non-competitive Government procurements [Ref. 15: p. 4].

The relationship between the Government and the prime contractor is characterized by a "privity of contract." There is a legally binding relationship formed between the two parties and described by the terms and conditions of the contract. These terms and conditions are based upon Federal procurement law [Ref. 16: pp. 38-39]. Government competition

policy will be reflected in the Government procurement methods and the terms and conditions of the prime contracts. If the contractors want to do business with the Government, they will have to comply with these policies.

2. Government Subcontract Competition Policy

The relationship between a prime contractor and his subcontractor are similar to that between the Government and the prime contractor in that a direct legal relationship is formed, characterized again by a "privity of contract." Although the legal relationship is governed by the rules of commercial contract law, rather than by Federal Regulations, there are cases where the subcontractors are subject to Government controls [Ref. 16: pp. 39-40].

The relationship between the Government and the subcontractor is marked by the lack of any sort of "privity of contract," and so there is no legal relationship between the two parties [Ref. 16: p. 41]. There are many examples of instances where, despite this lack of privity, the Government has established

> procedures and mechanisms...to influence the direct prime contractor-subcontractor relationship, as well as maintain some degree of visibility and control over key prime contractor suppliers, thereby creating at least an indirect relation with subcontractors. [Ref. 16: p. 53]

Some of these procedures and mechanisms are programs that directly affect the nature and extent of subcontract competition obtained by the prime contractor. Current Government policy to achieve maximum competition is

reflected in four programs. These are the Contractor Purchasing System Review (CPSR), Consent to Subcontracts, Make-or-Buy Program, and Component Breakout.

The CPSR evaluates the efficiency and effectiveness of a prime contractor's purchasing system. The primary concerns of the CPSR are:

a. The degree of price competition obtained;

b. Pricing policies and techniques, including methods of obtaining accurate, complete, and current cost or pricing data and certification as required;

c. Methods of evaluating subcontractors' responsibility;

d. Treatment accorded affiliates and other concerns having close working arrangements with the contractor;

e. Policies and procedures pertaining to labor surplus area concerns, including small disadvantaged business concerns;

f. Planning, award, and postaward management of major subcontract programs;

g. Compliance with Cost Accounting Standards in awarding subcontracts; and

h. Appropriateness of types of contracts used... [Ref. 4: 44.303].

The CPSR is used as a basis for Contracting Officer approval of contractors' purchasing systems. This approval allows waiver of some contractual requirements, such as Consent to Subcontracts.

Consent to Subcontracts is the Contracting Officer's written permission for a prime to enter into a subcontract. The basic guidance is that consent is required when:

the subcontract work is complex, the dollar value is substantial, or the Government's interest is not adequately protected by competition and the type of prime contract or subcontract." [Ref. 4: 44.102]

Other considerations also determine the applicability of consent, such as type of prime contract and the type of service being procured.

The basic purpose of consent is to help assure that the goods and services being procured and the method by which they are procured is in the best interests of the Government. Prior to granting consent, the Contracting Officer is responsible for considering the following factors:

1) Is the decision to subcontract consistent with the contractor's approved make-or-buy program, if any...?

2) Is the subcontract for special test equipment or facilities that are available from Government sources...?

3) Is the selection of the particular supplies, equipment, or services technically justified?

4) Has the contractor complied with the prime contract requirements regarding labor surplus area or small business subcontracting, including, if applicable, its plan for subcontracting with small business concerns and small disadvantaged business concerns...?

5) Was the price competition obtained or its absence properly justified?

6) Did the contractor adequately assess and dispose of subcontractors' alternate proposals, if offered?

7) Does the contractor have a good sound basis for selecting and determining the responsibility of the particular subcontractor?

8) Has the contractor performed adequate cost or price analysis or price comparisons and obtained accurate, complete, and current cost or pricing data, including any required certifications?

9) Is the proposed subcontract type appropriate for the risks involved and consistent with current policy?

10) Has adequate consideration been obtained for any proposed subcontract that will involve the use of Government-furnished facilities?

11) Has the contractor adequately and reasonably translated prime contract technical requirements into subcontract requirements?

12) Does the prime contractor comply with applicable cost accounting standards for awarding the subcontract?

13) Is the proposed subcontractor on the Consolidated List of Debarred, Suspended, and Ineligible Contractors...?

b) Particularly careful and thorough consideration... is necessary when--

1) The prime contractor's purchasing system or performance is inadequate;

2) Close working relationships or ownership affiliations between the prime and subcontractor may preclude free competition or result in higher prices;

3) Subcontracts are proposed for award on a non-competitive basis, at prices that appear unreasonable, or at prices higher than those offered to the Government in comparable circumstances; or

4) Subcontracts are proposed on a cost-reimbursement, time-and-materials, or labor hour basis. [Ref. 4: 44.202-2]

The Make-or-Buy program simply refers to the contractor's plan for acquiring major components either through in-house manufacture or subcontracting. Due to the criteria for requiring a make or buy plan, most major weapon systems contracts include such a plan. While the basic responsibility for make-or-buy decisions lies with the contractor,

the Government must review the program primarily to "ensure negotiation of reasonable contract prices, satisfactory performance, or implementation of socio-economic policies" [Ref. 1: p. 5]. As long as the program is not inconsistent with the interests of the Government, the program should be approved [Ref. 4: 15.706(c)].

Component Breakout is a method the Government uses to introduce or maintain competition during the production phase. Major components are identified that can potentially be competitively procured by the Government and then furnished to the prime contractor as Government-furnished material. The basic policy governing breakout is that it should be done where

> ...the prime contract for a weapons system...will be awarded without adequate price competition, and the prime contractor is expected to acquire a component without such competition,...if:
>
> a) substantial net cost savings will probably be achieved; and b) such action will not jeopardize the quality, reliability, performance or timely delivery of the end item.
>
> The desirability of breakout should also be considered (regardless of whether the prime contract or the component being purchased by the prime contractor is on the basis of price competition) whenever substantial net cost savings will result 1) from greater quantity purchases or 2) from such factors as improved logistics support through reduction in varieties of spare parts and economies in operations and training through standardization of design. [Ref. 5: 17.7202-2]

Decisions on breakout are tempered by assessing any risks involved, calculating expected cost savings, and analyzing other factors [Ref. 5: 17.7202-4]. This program effectively reduces the amount of subcontracting a prime

contractor can accomplish and will reduce his profits [Ref. 7: p. 2-72].

E. PROGRAM DESCRIPTION

All five of the programs investigated were in the aerospace industry and qualified as major weapon systems under current DOD policy.

The first program is for a new airframe for an existing communications system. The Full-Scale Development (FSD) effort was competitively awarded under a firm fixed-price (FFP) contract. The production contract is expected to be awarded on the basis of follow-on to competition and also be a FFP contract. The final effort will be for 15 units and total cost is expected to exceed $1.5 billion. Currently, there are nine major subcontractors, of which three were customer directed, two were sole source and four were selected competitively.

The second program is for a new airframe that contained a new surveillance system. The development effort was competitively awarded under a Cost Plus Incentive Fee (CPIF) contract. It is a mature program that has been in production under a FFP contract since the mid-1970's. Total production has been 31 units valued at approximately $2.8 billion.

The third program is for the rework of 100 existing missile tubes. The program was awarded on a sole source basis, due to the company's prior experience, under a FFP

contract. It is estimated that the total value of the contract will be approximately $1.5 billion. Due to the early stage of the program, there has not been much significant subcontracting effort although the company expects that they may eventually have 20 to 30 major subcontractors. Of these, only one is sole source, two will be customer directed, and the remaining subcontractors determined competitively.

The fourth program is for a missile system that is currently in the production phase. The FSD effort was awarded competitively under a Fixed Price Incentive Firm (FPIF) contract. The current production contract is for 330 units valued at approximately $180 million under a FFP contract that was awarded on a follow-on to competition basis. There are 18 major subcontractors of which one is sole source, none are customer directed, and the rest competitively determined.

The fifth program is for an upgraded missile system that is currently in FSD under a CPIF contract. The contract was awarded on a sole source basis to the original missile contractor due to their reliability and experience from previous missile systems. The total production quantity will be 72, with the total contract valued at approximately $6.8 billion.

F. SUMMARY

This chapter has described the major weapon system acquisition process. The two types of competition were

discussed and the types of market structures that were found in both the commercial market and the market in which major weapon systems were procured. The differences in these markets were primarily in the number of buyers and sellers, and the amount of available knowledge with respect to the exact nature of the system being procured. Basic Government competitive policies were described. The relationships among the Government, prime contractors, and subcontractors was discussed to establish the framework in which the Government implemented some of its competition-enhancing programs and these programs were defined. Finally, the five programs reviewed for this study were described. The next chapter will present the prime contractors' and subcontractors' definitions of competition and how much competition in subcontracts was achieved at each level.

III. DEFINITION AND EXTENT OF SUBCONTRACT COMPETITION AT THE PRIME CONTRACTOR AND SUBCONTRACTOR LEVEL

A. INTRODUCTION

Both the primes' and subcontractors' definitions of competition will be presented and compared with the Government's definition. The differences will be examined to determine whether or not a common definition of competition exists that is compatible with both industry's and the Government's definitions. The amounts of competition conducted, using both industry's and the Government's definition, will be compared to determine whether or not there is a significant difference caused by the different definitions.

B. DEFINITIONS OF COMPETITION

1. Prime Contractors' Definitions

Prime contractors were asked to compare their company's definition of competition with the following Government definition that addressed both price and technical competition:

> Price competition is defined to be where offers are solicited from all known sources and at least two responsible offerors who can satisfy the requirement independently contend for the contract by submitting responsive offers. Furthermore, the low offeror cannot have such a competitive advantage that he is practically immune to competitive forces and the lowest price offered is reasonable. Design or technical competition is where two or more qualified sources of supply are invited to submit design or technical proposals, with the contract award based upon this factor, rather than price alone.

Although during interviews, personnel from both prime contractors stated that they agreed with the Government's definition of competition and their material procedures also contained definitions of price competition that were essentially the same as the Government's, there were some differences.

One of the contractors acknowledged there were two types of purchase actions included in their definition of what they termed "traditional" or price competition: 1) "pure" price competition where they solicited known and reliable suppliers using definitive specifications, with the award based upon lowest price, and 2) best "evaluated" price where the specifications were not as definitive. In the latter type, many other factors rather than price alone were used in determining the successful supplier. These factors were: technical approach, management, product quality, manufacturing capability, cost, and reliability and safety. Formal source selection procedures are established where weights are assigned to these factors and the best overall proposal receives the award. The prime contractor said that their design/technical competition was included in this category.

The only category that coincided with the definition of adequate price competition as specified in FAR with regard to exemption to the requirement to submit cost and pricing data was the "pure" price competition situation [Ref. 4 : 15.804-3].

This contractor also had other categories of buys included in the definition of competition. If an item had been competed according to the above "traditional" definition in a previous related program, the follow-on buy to the previous source for the current program was to be counted as competition. A last category consisted of buys made as a result of an internal technical evaluation, without regard to price. Evaluation techniques included review of a company's technical literature, in-house testing of sample products, and sending out Requests for Information (RFI) and/or Requests for Proposals (RFP). Evaluation criteria in these cases could run from being fairly subjective to completely objective. Once a source was selected in this manner, specifications were developed and the buy was made on a single/sole source basis. This contractor did not distinguish between a single source and a sole source.

Specific subcontract competition goals have been set for this contractor in performing the contract and all of the above categories will be reported as competition under the contract.

The second prime contractor's only formal definition of competition, found in a statement of corporate policy, referred to "initial" competition:

> Therefore, initial and follow on procurement, except as qualified herein, shall be based upon effective competition by securing bids from three or more sources which submit a competitive bid, are qualified to perform the specified work, and will accept the contract if awarded.

This definition of "initial" competition applies to this contractor's methods of obtaining competition that are essentially the same as those contained in the other contractor's definition of price competition: where there is adequate price competition as defined by the FAR, the company is exempt from submitting cost and pricing data and have source selection procedures that determine the best overall proposal.

Other types of purchase actions included in their definition of price competition: (1) follow-on to competition when the competition has been conducted within one year, and (2) the exercise of options on a competitively awarded contract.

One last minor difference is that this company requires that at least three or more sources be solicited in order to call it effective competition.

Neither company solicited from "all known sources," but rather would either prequalify the companies to be solicited or select potential sources from among companies with known performance. The two primary reasons given for these procedures were: (1) to reduce the administrative cost of having to evaluate many proposals, some from companies with little chance of winning the contract, and (2) to avoid having the potential source spending time and effort in a futile effort to win the contract.

2. Subcontractors' Definitions

Subcontractors were asked to compare the same Government definition of competition to their official definition of competition. Fully two-thirds of the respondents stated that their definition was essentially the same as the Government's. Another 24% basically agreed with the Government's, but identified some differences. The first difference was that the subcontractors did not solicit from "all known sources." The reasons for this were identical to the reasons given above by the prime contractors. The second difference was that some subcontractors required that at least three responses be obtained in order to consider that price was based on competition. Some other minor exceptions were noted. One subcontractor took exception to the prohibition of a company having "such a competitive advantage that he is practically immune to competitive forces," saying that he did not understand why the Government would exclude this from their definitions.

Two subcontractors did not fully agree with the Government definition with regard to both price and design/technical competition. One company did not engage in any type of price competition, only technical competition. The other company did not recognize design/technical competition because they felt it was so subjective as to be meaningless.

3. Comparison with Government

There was no significant disagreement among either the primes or the subcontractors as to what was an acceptable definition of competition. The only difference observed was in the number of sources solicited. The Government definition encourages including all known sources, while the primes and subcontractors prefer to restrict the number of sources solicited. These sources were among the best available, at least in the opinion of the companies. This would imply that competitive market forces were encouraging the suppliers to perform well. Suppliers, after trying vigorously to get on a prime contractor's bidding list, would perform well in order to remain a supplier of the prime contractor. Besides, the Government definition is aimed more at ensuring that no one is unreasonably denied the opportunity to bid. Company efforts to increase competition will be examined in the next chapter.

Differences were found in the types of actions included under the term competition, especially follow-on to competition and internal technical reviews. While there may be some justification for considering follow-on to competition as competitive, there does seem to be a problem regarding the length of time after the initial competition that the benefits of that competition will continue to be realized. One prime considered the benefits of the initial competition to last over many years, while the other prime contractor

felt that the benefit would last only for about one year from the initial award. It is obvious that there has been some competitive benefit realized in follow-on procurement actions, but as the length of time from the initial competition increases, benefits may become diminished.

The Government now recognizes the unique status of follcw-on to competition actions. Previously, these actions had been classified as non-competitive in the Federal Procurement Data System (FPDS) and caused scme concern throughout industry that this classification did not fully reflect the extent of competition in DOD procurement [Ref. 17: p. 1]. There are now seven categories used to classify negotiated procurement actions according to the extent of competition. These are:

a. price competition
b. design or technical competition
c. follow-on after price competition
d. follow-on after design or technical competition
e. other noncompetition
f. noncompetition based upon catalog or market price
g. competition not applicable. [Ref. 5: 4.671-5(c)(5)]

Finally, one of the prime contractors used an internal technical evaluation that was considered to be competitive. This evaluation technique does contain some elements of competition, in that several different products are evaluated against one another. The researcher would observe that this completely internal procedure does not always inform the potential suppliers of the evaluation and so does not give them the opportunity to fully describe all of their products

and capabilities. The prime contractor's personnel may be unaware of some of these products or capabilities that would conform to the prime contractor's needs. The researcher believes that the inconsistent and subjective nature of this evaluation technique make it incompatible with the Government's definition of competition.

C. AMOUNT OF COMPETITION

1. Prime Contractors

A total of 70 major subcontracts were examined and the most predominant type of competition conducted was the type that is similar to the Government's competitive negotiated procurements. Competition where price alone was the only selection criterion was observed only twice in this study. The reason most often given for this was the definitive specifications were not available early in the program when the competition was most intense.

The amount of competition conducted is presented in tabular form in the following pages. Competition in this section refers to competition conducted in the initial program stages. Competition includes both actions the Government has accepted to be competitive and actions that are competitive according to the Government definition. Total contract effort is the value of the contract during the initial stages of the program. These initial stages were where most of the new procurement effort occurred, and included either the Full-Scale Development effort or both

the Full-Scale Development and initial production, depending on the program. Subcontracts studied include only those actions above $500,000.00.

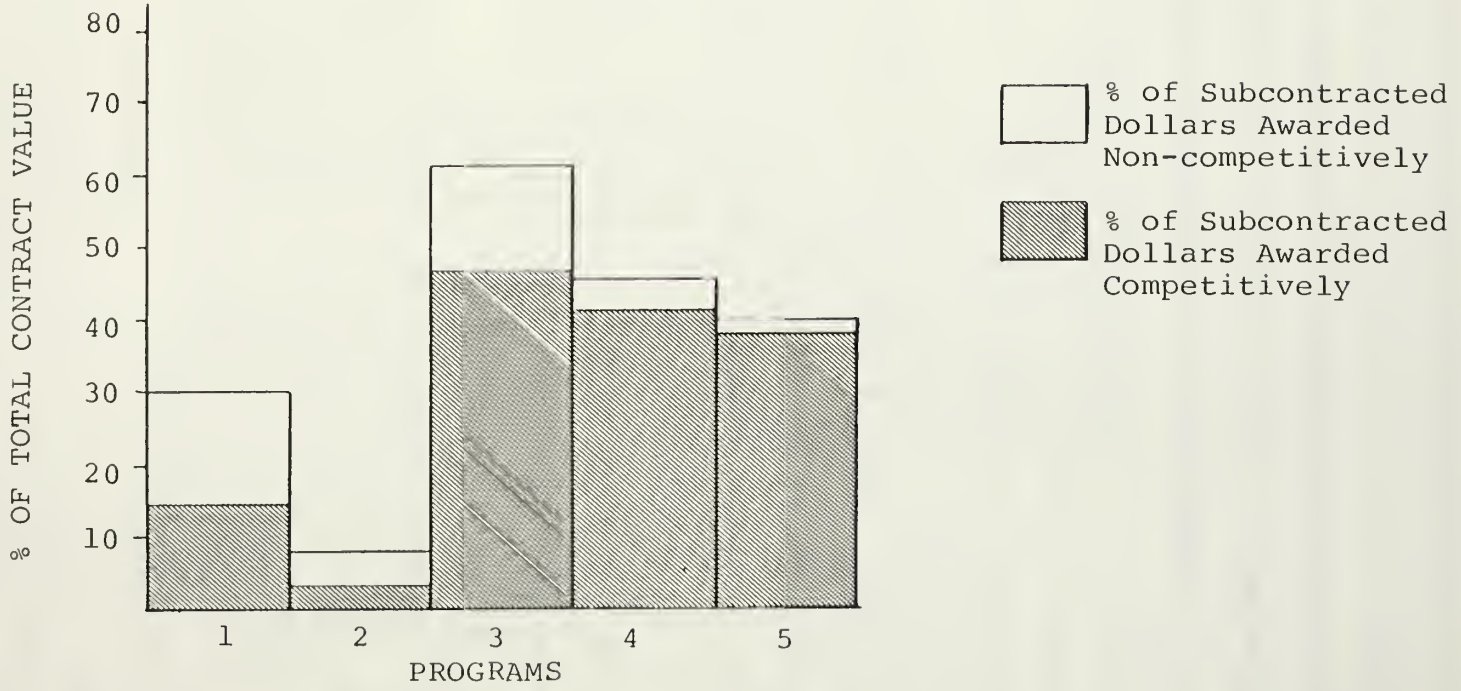
Table 1 shows the amount of dollars available for subcontracting as a percentage of total contract effort for the programs identified in Chapter II. (The sequence of programs presented in Chapter II are not structured in the same sequence as presented in Table I.) It is generally expected that from 40% to 60% of any one prime contract will be subcontracted [Ref. 1: p. 19]. The companies in this study fell within this range. Table I also shows how much competition either has been or is projected to be conducted as a percentage of total contract effort. Combining these figures shows the extent of competition conducted as a percentage of the total contract effort that was available for subcontracting. These percentages would indicate that, in some cases at least, prime contractors compete a large percentage of the subcontracted effort in the initial program stages. The researcher would observe that increasing the amount of subcontract competition conducted by the prime contractors would be difficult without expanding the amount of effort available for subcontracting.

2. Subcontractors

Subcontractors were asked to estimate the amount of competition obtained in the acquisition of goods and services, according to each definition, including only those

TABLE I

EXTENT OF SUBCONTRACT COMPETITION CONDUCTED BY PRIME CONTRACTORS



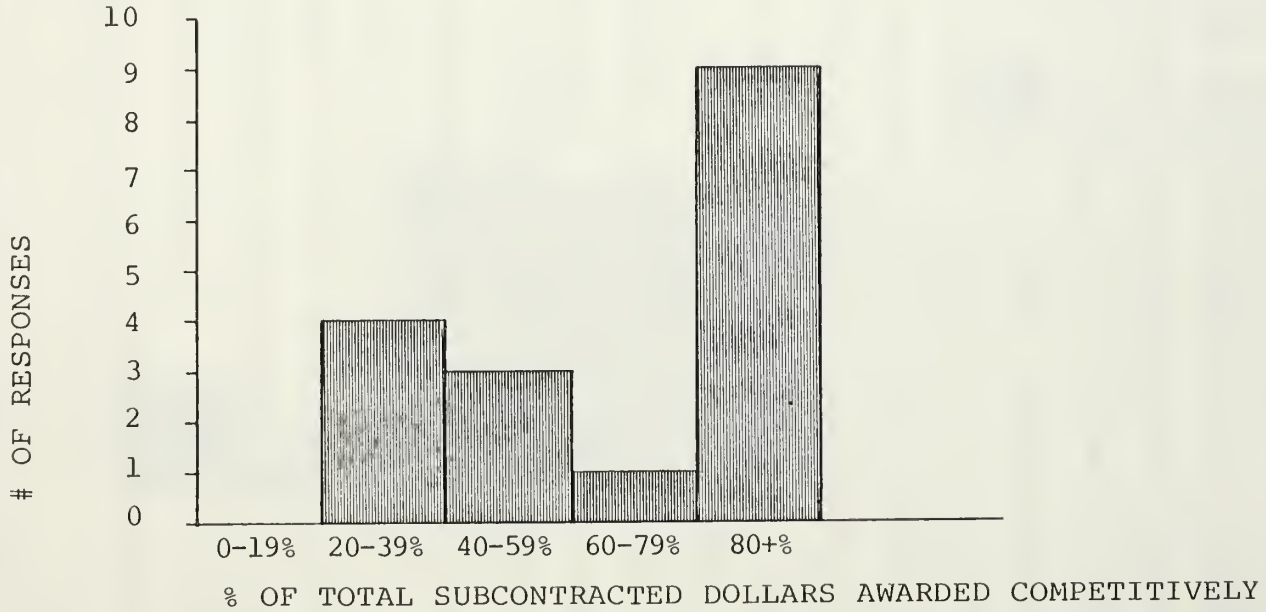
actions of $25,000.00 or more. This was asked to determine whether or not there was a significant difference in the amount of competition conducted that met the subcontractor's own definition and competition that met the Government's definition. This question was intended to determine if the Government definition was overly restrictive. Three companies indicated differing amounts of competition depending upon which definition was applied. Only one company gave a reason for this difference, that being the company did not recognize or include the concept of design/technical competition. The amounts of subcontract competition conducted by subcontractors are shown in Table II. The data may indicate that a much greater amount of competition is being conducted at the subcontractor level than at the prime contractor level. Subcontractor responses indicated that this competitive effort was of a continuous nature, as the subcontractors relied on new ideas and products to maintain their competitive edge. This is in contrast to the situation with the prime contractors, where most of their competitive effort is concentrated in the initial stages of the program. The researcher believes that this could be due to the types of goods and services obtained, e.g., more basic components and raw materials.

D. SUMMARY

The basic thrust of this chapter has been to ascertain whether or not there is any difference in the definitions of

TABLE II

EXTENT OF SUBCONTRACT COMPETITION CONDUCTED BY SUBCONTRACTORS



competition used by the Government, prime contractors, and their subcontractors. If so, was this difference reflected in the amount of competition that was being obtained? The research shows that there is not a significant difference in the definitions and also not a significant difference in the amount of competition, using either definition. The researcher believes that this data shows that the Government definition would be an adequate definition of competition. The data presented in Tables I and II would indicate that substantial increases in the amount of subcontract competition conducted by both the prime contractor and subcontractor level may not be possible in many cases. Now that some common concepts regarding competition have been developed, the next chapter will investigate what motivates prime contractors to compete their subcontracts, what methods they use to achieve the competition, and their views on how the amount of subcontract competition could be increased.

IV. THE NATURE OF SUBCONTRACT COMPETITION AT THE PRIME CONTRACTOR LEVEL

A. INTRODUCTION

This chapter will look at the motivators, both positive and negative, that exist for prime contractors to maintain competition in their subcontract management. The importance and effectiveness of these motivators will be assessed. The prime contractors' procurement procedures used to achieve subcontract competition will be presented. Finally, prime contractor ideas on how to increase the amount of subcontract competition are discussed.

B. MOTIVATIONS TO COMPETE SUBCONTRACTS

1. Corporate Policy and Strategic Motivations

Overall corporate policy at both prime contractors was that, whenever possible, competitive procurement practices were to be used to the maximum extent. Beyond the fundamental statements citing the benefits of competition, the strongest corporate policy motivator to seek competition in subcontracts was to achieve lowest possible costs. There were two main reasons for this desire to keep costs low.

The first reason was to reduce the projected program costs as much as possible to help the program itself stay competitive within the DOD budgeting process. Programs with increasing costs might draw unwanted attention. There is

real pressure to reduce costs from both the company and the Government customer with a common goal: to help ensure program survival.

The second reason is that the contractor wants to keep costs down to remain competitive for ultimate selection as prime contractor. If the company is already the prime, the emphasis changes to include increasing fees or profits as well as reducing program costs. These primes also believe that it is important to keep costs down to maintain their status as the sole/single source.

Both primes believe that competition is one of the best ways to achieve the lowest price. Several examples cited by prime contractor personnel showed where single source suppliers whose prices historically followed a 115-120% pricing curve, showed a reversal to a decreasing price curve once the supplier was competing for the business.

Both primes maintain competition among multiple sources for some items to decrease the risk of schedule delays caused by supply interruption. Some of these items were explosive products whose supply could be interrupted due to rejection of large batches of defective chemical explosives or destruction of the subcontractor's production capability due to industrial accidents such as explosions. The primes also noted that there was an increasing potential for supply interruption due to political activity such as protests against local plants or even banning production of weapon systems in certain communities.

2. Contract Provisions and Clauses as Motivators

Generally, neither prime contractor felt motivated to compete as a result of existing contract provisions or clauses in their prime contracts. Most contract clauses dealing with subcontracts address the management of the subcontracting process; such as determining what documentation must be in subcontract files, what actions require consent, and when cost and pricing data is required. The only clause dealing with competition in subcontracts merely states that:

> The contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum extent consistent with the objectives and requirements of the contract. [Ref. 4: 52.244-5]

Primes reported that this clause does not have any effect, positive or negative, on the amount of competition conducted. Other common contract provisions dealing with competition dealt with the Contractor Purchasing System Review (CPSR) and Consent to Subcontract. Although the extent of competition is an area of key concern in these reviews, the main result of these requirements was to ensure that the reason for not competing was well-documented, rather than actually encouraging competition. This prime emphasized that the only contract provision that had an effect on the amount of competition conducted was where specific competitive goals were assigned as part of the contract. Extensive subcontract competition was part of the program's acquisition strategy and was emphasized in seeking Congressional approval for the

program. These goals were taken very seriously by the prime contractor; and he was making every effort to meet them. The researcher felt that in this instance at least as much motivation came from the prime contractor's corporate strategy to maintain their sole source position.

3. Other Motivators

There are other costs, besides direct material costs, that can be reduced by competition. Sole source contractors can be difficult to negotiate with effectively, requiring more time and effort by skilled negotiators to do both the actual negotiations and then complete all required documentation. One prime also mentioned that competitive sources, when they encountered production problems, required much less prime contractor management involvement. When a sole source encounters production problems, potentially causing delays in the prime's production, it is generally the prime who has the greater motivation to solve the problem and generally will have to send their own management teams to work days, nights, and weekends until the problems are solved. The subcontractor will tend to sit back and let the prime solve the problem for him. The competitive subcontractor knows his status and therefore will expend all effort to solve the problem as soon as possible since he knows that the prime can, with relative ease, get the items from someone else. One prime had noticed this phenomenon with a particularly troublesome subcontractor.

C. DISINCENTIVES TO COMPETE

1. Environmental

Some disincentives to compete stem from the very nature of the major weapon systems acquisition process. Early in the program, extensive competition is conducted. Once the sources are selected, usually after exhaustive evaluation, and the exact specifications are determined and incorporated into the overall design, any changes become extremely costly to incorporate and can degrade reliability. In many cases, it is nearly impossible to determine the effect on the system if another supplier's product was put into the system, even if it should be the same item. The interviewees indicated that the potential decrease in reliability is not worth any potential savings resulting from competition, especially in contracts where reliability, rather than price, is the over-riding evaluation criterion. One prime contractor stated that reliability benefitted greatly from the initial technical competition. After that initial competition, reliability was maintained only if the item was not competed. Suppliers would be changed only if it became impossible to acquire the product from the current supplier.

Related to the area of reliability are warranties. Tightened warranty requirements could have an extremely adverse impact on the prime's subcontract competition program. The prime, wanting to introduce as little risk as possible, would tend to go only to large, reputable suppliers

sure to be around to stand by the product if problems develop in the future. The benefits of greater reliability achieved through competition would not be enough for the prime to continue to do business with a large number of smaller suppliers, preferring instead to deal with fewer numbers of larger, more stable companies.

Even where it may be desirable to either maintain competition or reintroduce it during the production phase, the yearly uncertainty of the Executive Branch and Congressional budgeting process is enough to discourage investment in developing alternate sources. If production quantities were known, better decisions could be made regarding the feasibility of developing more sources. Also, the relatively small numbers of items required, even over the entire life cycle of the weapon system made justification for maintaining competition difficult.

One prime contractor stated that the subcontractor base was shrinking due to increasing subcontractor difficulties in dealing with the prime contract's flow-down provisions. Generally, many subcontractors don't have to sell to the Government and indeed, many choose not to, preferring to sell to prime contractors. But, as this process becomes more difficult, subcontractors will concentrate on their commercial business. Especially onerous examples cited were: socio-economic programs, conforming to the Cost Accounting Standards, rights in technical data, and warranty requirements.

2. Corporate Policy and Strategic Disincentives

Teaming arrangements made with other companies in order to be fully competitive for a contract, reduce the opportunity for subcontract competition since many of the major components will be made by one of the team members. Although the process of selecting team members may be made in a highly competitive environment, future opportunities for further competition might be quite small. Although not exactly a teaming arrangement, one prime contractor encouraged suppliers, once selected, to consider themselves as part of the program team for the duration of the program. The strong "no change" policy of the program reinforces this type of arrangement.

Competition is impracticable in many circumstances and both primes shared common reasons for single and/or sole source procurement. These reasons were cited in the companys' material procedures specifying when non-competitive procedures were appropriate. Whenever one of these situations was encountered, higher level approval within the prime was required prior to making the buy. These were: (1) customer directed source, (2) the new equipment must match existing systems or equipment, (3) the product is proprietary, and (4) the existing source is qualified and there are not sufficient incentives, financial or otherwise, to establish another source. Once a program is in the production phase, the most common justification for non-competitive procurement is the last one, that the existing source is qualified.

Both prime contractors stated that they felt it was important to have the flexibility to place orders with suppliers whose past performance was excellent. They did not think that competition in those instances would be beneficial if it interferred with an excellent business relationship. One prime contractor named several major sole source contractors whose prices consistently followed at least a 90% pricing curve.

Numerous other reasons were also cited, most of which were peculiar to the program or the company's internal procedures and are seldom encountered in major subcontracts. Examples include: security requirements to protect classified data, schedule considerations precluding the time to compete, and specific equipment needed for engineering evaluation. Generally, the dollar value of these purchases was quite small compared to the total contract value.

D. METHODS OF ACHIEVING COMPETITION

1. Standard Procurement Procedures

The primes' standard procurement processes usually assured that maximum competition was obtained. These processes included both bidding and negotiating techniques. Bidding techniques were used when the selection criterion was lowest price only. This technique was most often used by the primes to obtain raw materials and common items used by one or more divisions of the company. Since these items

were not included in the subcontract review, no further mention of bidding techniques will be made. The procurement process for major subcontracts was primarily negotation and this procedure is described below.

The procurement process is designed to assure full and fair competition through an aggressive program of source qualification and approval and an impartial source selection process. One of the most important responsibilities of contracting personnel is to find qualified suppliers that can reliably produce the required product at the lowest price. Both primes maintained extensive subcontractor data bases. Information for the data bases was gathered primarily from internal sources such as past performance and results from plant visits or inspections, with some other basic information supplied by the subcontractors. In some cases, the prime will prequalify a potential source if that source seeks to do business with the prime or if an individual at the prime level recommends a particular supplier. This information is translated into ratings that basically either approve or disapprove a supplier as a source. Both primes had large numbers of approved suppliers; one of the primes currently has over 40,000 approved subcontractors. This aggressive program assures that a maximum number of qualified suppliers can be included on the bidder's list.

Once the bidder's list is determined and proposals are requested, the source selection procedures provide a

thorough, impartial process that documents the selection criteria used, defines the relative importance of these selection criteria, and allows for quantitative distinction between the suppliers that decides the best overall proposal. Both primes had similar selection criteria, the most important being: technical approach, cost, reliability and safety, product quality, manufacturing capability, management ability, and financial capability. The weights assigned to the criteria varied, depending on the provisions of the prime contract and the nature of the item bought.

2. Other

Other methods of increasing competition were observed. These were Government or prime contractor directed competition for major components or subsystems, use of Requests for Information (RFI) to test the market, and use of multiple or dual sources.

Directed competition by both the Government and the prime contractor appeared to increase competition at the subcontract level. Government-directed competition was a contract provision of one of the programs examined for this study. In this case, the Government paid the prime to run an extensive technical competition conducted between two bidders. The successful bidder then became a major subcontractor to the prime. When the primes directed competition, they were motivated by the desire to stay with a single source, but wanted to get the benefits of competition on

major items. In one case, the prime designed the items to be readily available and then directed the subcontractor to compete them. This was controlled by having purchase approval authority held at the prime level. In another case, certain high cost items were identified during cost analysis of the subcontractor's proposal. The prime contractor then successfully "encouraged" the subcontractor to compete these items without specifically directing competition.

One of the primes used RFI's instead of RFP's to test the market. Often the prime knew of only one source that could make the product, but prior to sending an RFP to that source, would send out RFI's to several potential sources. In these cases, the primes were seeking interested bidders more than definitive proposals. The RFI's used were much less definitive than the typical RFP, usually describing the desired product in rather general terms. It was designed to find technically competent and interested suppliers. If several competent sources responded to the RFI with adequate proposals, the prime would usually decide to compete the requirement, at least among the responding suppliers. If only one supplier responded to the RFI, then it was usually decided to negotiate directly with that supplier on a single source basis.

One prime was successfully using dual sourcing on one of the programs, much more so than observed in any of

the other programs. In this case, dual sourcing was used primarily to obtain competitive pricing on high cost items and to minimize program schedule risk by ensuring critical hardware availability. The prime felt that dual sourcing was very successful in substantially reducing the costs of some items. This prime experienced significant price decreases when a second source was brought on, or even when the existing single source thought that the prime was going to second source the item. The prime stated that they had observed price decreases of 30-35% as a result of either actually or threatening to dual source an item. The prime did note that the dual source threat would work only once with any one supplier, but if dual sourcing was actually accomplished, the competition would remain over the life of the program. The prime was able to assure a steady supply of critical castings by working hard to make another source qualified to produce the castings.

E. INCREASING THE AMOUNT OF COMPETITION

Both primes felt that they were sufficiently motivated to obtain maximum subcontract competition due to the reasons cited above and there was not much additional internal incentive to increase competition. They suggested several possible Government actions that would cause increased subcontract competition, in both the initial and production program phases. These suggestions were in the areas of: source

selection criteria for prime contractors, dual and directed sources, and contract incentives.

By including the amount of subcontract competition as one of the source selection criteria, the primes felt that this would directly increase the amount of subcontract competition. The primes would simply "make it so" to remain competitive themselves for the prime contract.

One prime expressed frustration because the Government seemed reluctant to pay the necessary initial costs to establish a dual subcontractor source, even though the prime was quite confident that significant cost savings would result. In fact, this prime contractor thought that the Government was not very interested in dual sourcing, being unwilling to fund it until a program got into trouble and the Government realized that establishing another source would solve the problem. The prime also stated that the Government probably had previous dual sourcing experience in these types of hardware items and could share this information to the benefit of both parties. Regarding directed sources, one prime stated that the Government could increase the amount of competition merely by reducing the number of directed sources in prime contracts.

The primes stated that if their profits were directly affected by the amount of subcontract competition conducted, they would be able to increase it. They both pointed out that any incentives in this area would have to be consistent

with the other incentive provisions. For example, one felt strongly that increasing competition in the production phase would significantly reduce reliability. This would be inconsistent in a contract where the most important goal was achieving a certain level of reliability.

F. SUMMARY

There appear to be two primary sources of motivations for prime contractors to conduct subcontract competition: internal corporate policies and prime contract provisions and clauses. The corporate policies emphasize reducing overall program costs in order to help ensure the continued survival of the program and to increase corporate profits. Program survival is usually a key goal of DOD also. Generally, contract provisions and clauses were not effective motivators. Disincentives to conduct subcontract competition come from the environment of major weapon systems acquisition; many of the inherent characteristics discourage subcontract competition. Some internal corporate policies were also a disincentive to obtaining subcontract competition. These policies are seen as necessary to increase the competitiveness of the prime contractor and also enable the prime to exercise subcontract management to best achieve overall corporate goals and prime contract requirements. The prime contractor's normal purchasing procedures promote competition, and the prime also uses other methods to achieve subcontract competition. Prime contractors felt they did not have any additional

incentive to do more subcontract competition, but gave several suggestions for Government actions that would cause them to increase the amount of competition. These were: providing funding to develop second sources, contract incentives, using amount of subcontract competition as a source selection criterion, and reducing the number of Government-directed sources. Several of the prime contractors' methods of achieving subcontract competition promoted competition into and throughout the production phase, one of the areas where it is generally acknowledged to be difficult to achieve competition. The next chapter will examine these same areas from the viewpoint of the subcontractors examined during this study.

V. THE NATURE OF SUBCONTRACT COMPETITION CONDUCTED AT THE SUBCONTRACTOR LEVEL

A. INTRODUCTION

The purpose of this chapter is to present the findings of the questionnaire sent to subcontractors. The responses covered subcontractors' motivations to compete, the disincentives to competition, and how subcontractors achieve and increase competition.

B. MOTIVATIONS TO COMPETE SUBCONTRACTS

The primary motivators to compete subcontracts were corporate goals and strategies. The most often cited reason for competing was to obtain the best quality product at the lowest possible price. Competitive subcontracting processes also reduced purchasing administrative costs and lead time. Awarding to the lowest bidder resulted in a much "cleaner" purchase by decreasing the amount of supporting documentation, such as cost and pricing data, and reducing the internal approvals needed to make the award. The competitive process also allowed buyers to become more productive by avoiding long and costly sole source negotiations. Overall, competition resulted in reduced direct material and direct labor costs.

Subcontractors stated that for the above reasons, competition in subcontracts directly increased profits under

FFP contracts or through increased fees under incentive type contracts. One of the subcontractors expressly stated that, being in a highly competitive business, "the profit motive thus becomes our prime factor" for conducting competition in subcontracts. Several subcontractors also stated that having competition helped to assure a greater availability of parts.

Beyond the immediate effect of increasing profits, subcontract competition helped subcontractors achieve some of their long term, strategic goals. One goal mentioned was the potential to increase market share due to offering more advanced products as competition increased their knowledge of new techniques and different components on the market. A solid base of subcontractors that could provide the best mix of cost, performance, and schedule gave the subcontractors the increased chance of winning future contracts due to a lower cost base.

One subcontractor reported receiving no benefit from competition, but did it only to "keep the Government auditors happy."

C. DISINCENTIVES TO COMPETE SUBCONTRACTS

Two basic sources of disincentives to compete subcontracts were identified: those external to the subcontractor and those internal to the subcontractor. The external disincentives can be categorized as being either market conditions

or customer imposed constraints, normally beyond the subcontractor's control. The internal disincentives were policies and procedures set by the subcontractor.

1. External Disincentives

a. Market Conditions

(1) The lack of qualified suppliers was one of the problems cited by a majority of subcontractors. This situation was caused by numerous factors. One of the most important factors was due to the nature of the subcontractor's business. Many of the subcontractor's requirements are for advanced, state-of-the-art items and there may be only two or three sources that have the engineering, technical, manufacturing, and quality capabilities necessary to provide these items. In some cases, several suppliers may have tried to make the part, but all but one has failed to make the part profitably. Another factor cited was that only one supplier was able to produce the required quantity on schedule. The difficulty in qualifying new suppliers also restricted the number of suppliers. Subcontractors noted that the qualification process could be expensive and time consuming. Also, one subcontractor stated that new or prospective suppliers were unable to define their capabilities and skills accurately enough to allow the subcontractor to determine what products the supplier could provide.

(2) The second most often mentioned disincentive to subcontract competition was proprietary items. Again, the

state-of-the-art was such that only one company had the specialized knowledge or techniques to make the part and/or it was protected by patents. There being little substitutability of these parts, few if any, equivalent parts were available.

(3) Finally, some subcontractors noted that even where price competition was appropriate, some suppliers had an overwhelming advantage due to their past experience with producing the item and learning curve effects. This past experience can be invaluable in producing the items as sometimes not all required knowledge necessary to make the part can be defined and written into specifications. Some of the subcontractors referred to some of their suppliers' capabilities as more of an art than a science.

b. Customer Imposed Constraints

(1) Subcontractors felt the prime contractor limited competition by directing sources of items. The subcontractors noted that this was sometimes a flow-down requirement from the Government, rather than the prime contractor. Restricting procurement to sources on the Qualified Parts List (QPL) frequently restricted competition. Although the necessity of the QPL was accepted, some subcontractors thought more suppliers could be included if the Government or prime contractor were willing to pay for qualifying additional sources. "No change" policies of the prime contractors for the life of the program were also cited as restricting competition.

(2) Many subcontractors felt that not enough proposal or bid preparation time was allowed by the prime contractor, precluding them from fully using their supplier base. Another time constraint was the relatively short delivery lead times for items, further restricting the number of sources that could respond.

(3) Subcontractors stated that the relatively small number of items typically procured prevented efficient production runs. Also, uncertainty regarding future volume hampered long term requirements forecasting that would encourage suppliers to invest funds in tooling to become qualified to produce the item. A related problem was that the prime would change the production quantities, causing the subcontractors' suppliers excessive bidding costs and also causing supplier reluctance to become involved in Government business.

(4) One subcontractor felt that some of his suppliers were unwilling to become involved in Government contracts, because of the potential for becoming entangled in many of the "weighty and burdensome" contract flow-down provisions.

2. Internal Disincentives

Many subcontractors felt it very important to maintain long term relationships with those suppliers who had performed well in the past. These suppliers had consistently provided high quality products on time. The suppliers' personnel had acquired specialized, detailed knowledge that was reflected in the superior reliability of the suppliers'

products. These suppliers reduce the subcontractor's in-house inspection costs. The subcontractors felt these suppliers had earned the right to the business. Competition in these situations endangered an advantageous business relationship for questionable gains; such as introducing competition merely for the sake of competition. Subcontractors felt the risks inherent in shifting sources did not, in general, offset possible price reductions.

Another area concerned placing awards on a follow-on basis to competition. Subcontractors do not feel it is always cost-effective to recompete additional quantities because these quantities are generally few in number and subcontractors will want to take advantage of sunk development costs with particular suppliers. Also, a previous supplier may have enough material/parts stocks on hand to make the item relatively quickly and easily.

Some other internal policies or conditions that restricted competition were: subcontractor's policy to buy from original equipment manufacturers and a lack of skilled buying personnel who could find several qualified suppliers for any particular item.

D. METHODS OF ACHIEVING AND INCREASING SUBCONTRACT COMPETITION

1. Methods of Achieving Competition

The majority of subcontractors felt that most of their normal, standard purchasing procedures were competitive and

also compatible with the Government's definition of competition. Procedures mentioned were categorized by the researcher into statement of work reviews, source selection procedures, and source development efforts.

Under statement of work reviews, subcontractors stated they structured Requests for Quotations (RFQ) or RFPs to encourage and enhance competition by using general specifications. They did this by eliminating specific part numbers where possible and cautioning buyers against routinely accepting proprietary part numbers and drawings from technical personnel. The subcontractors also, when possible, tried to provide a flexible delivery schedule of different quantities, all of which would satisfy the basic requirement. One subcontractor mentioned engineer training in the area of different suppliers availability and capability as being an important part of this effort. However, one subcontractor stated that "development of competition should be based on sound economical tradeoffs; i.e. the cost saved/derived from seeking the competitive bids versus the administrative costs incurred by such action."

Most subcontractors referred to "normal purchasing practices" or "standard industry practices" in response to questions about source selection procedures. Some specific comments suggested techniques quite similar to those utilized by the prime contractor discussed in the previous chapter. These were contract award based upon price and past

performance or a combination of lowest price, best product, and satisfactory delivery schedule. Several subcontractors stated that it was important for the suppliers to realize the subcontractor's policy was to obtain maximum competition. These subcontractors expressed difficulty in convincing suppliers they were serious in their efforts to compete. Several subcontractors included maintaining a comprehensive supplier data base containing past performance information as important to being able to get an adquate number of suppliers on the bidding list.

Source development efforts encompassed both efforts to expand competition for current requirements and to increase the base of competitive suppliers for future requirements. Because most of these efforts also increased the amount of competition over the long term, source development efforts are included in the next section's discussion on increasing competition.

A few purchasing practices were identified by the subcontractor as being competitive, but they felt these were inconsistent with the Government's definition. These practices were mentioned only by one or two subcontractors and did not seem to have wide application. These practices included:

a. conducting "all or nothing" annual competitions for total estimated requirements for common items;

b. opening discussions on possible cost reductions with suppliers during the bidding process, and

c. defining Government directed sources as competitive.

2. Methods of Increasing Competition

Many subcontractors stated it would be difficult to increase the amount of subcontract competition since they were already doing as much as possible or feasible. However, many other subcontractors had aggressive programs to increase competition. Some subcontractors stated that prime contractor actions could cause them to increase competition.

Source development was one of the most common methods of increasing competition by increasing the size of the subcontractor base. The normal methods of achieving competition identified above still need additional sources to realize the full potential of these methods. One of a buyer's major responsibilities is to find acceptable suppliers. Subcontractors used many methods to find new suppliers and keep existing ones:

a. maintaining an open door policy to let suppliers know that they can compete for the subcontractors' business;

b. holding briefings with all interested suppliers to acquaint them with potential programs and subcontractor procurement goals;

c. holding debriefing sessions with unsuccessful suppliers to inform them why they did not win the subcontract and what they need to do to become more competitive;

d. encouraging long term relationships with suppliers, encouraging them to make tooling investments and providing suppliers with engineering and other technical support (no financial support);

e. maintaining an aggressive Small and Disadvantaged Business Program, and

f. treating suppliers fairly and honestly, and paying their invoices promptly.

There were several possible prime contractor actions that would cause the subcontractors to increase the amount of competition they achieved. Relaxing or alleviating any of the prime contractor imposed constraints would serve to increase competition. Prime contractors could also direct the subcontractors to obtain more competition, identify more qualified sources, make more FFP contracts with the subcontractors, or have incentive provisions in subcontracts for the amount of competition achieved.

E. SUMMARY

This chapter has presented findings that many subcontractors' motivations to compete are primarily internal. These included increasing profits and potentially increasing market share and chances of winning future contracts. There are significant disincentives to conducting subcontract competition, but many of these are beyond the direct control of the individual subcontractor. These included existing

market conditions and customer imposed constraints. Subcontractors have adequate methods of achieving competition, and make long term efforts to increase the size of their supplier base to ensure future competition. Some direct prime contractor actions could cause the subcontractors to increase the amount of competition achieved, such as, directing more competition, identifying qualified sources, and contract incentives. The next chapter will discuss these findings in conjunction with the findings of the two previous chapters and the implications of these findings on Government policy.

VI. GOVERNMENT POLICY IMPLICATIONS ON PRIME CONTRACTORS AND SUBCONTRACTORS

A. INTRODUCTION

This chapter will discuss the policy implications for the Government based on the findings at the prime contractor and subcontractor levels. Identified differences in the definitions of competition will be examined to arrive at a common definition. The necessity of having a common definition is also discussed. Current Government policy and its effects on achieving and increasing subcontract competition are evaluated using the prime contractors' and subcontractors' motivations to compete as determined by this study. Included will be an assessment of the amount of subcontract competition conducted by both the prime contractors and the subcontractors.

B. DEFINITION OF COMPETITION

This study found that both prime contractors and most of the subcontractors ageed with the Government's definition of competition. The exact agreement with the rigorous Government definition of price competition could be due to the requirement to submit cost and pricing data for subcontracts that are awarded without adequate price competition [Ref. 4: 15-804-3]. This policy forces a common definition as this study found it was not worthwhile for contractors to have more than one definition of price competition.

The major difference was in the number of sources solicited. The Government, in its procurements, uses extensive bidders lists and public notices to attract as many potential sources as possible. This is motivated, in part, by the desire to obtain the direct benefits of competition. Since the market in which major weapons systems are acquired is characterized by relatively few sellers, the Government must ensure that its needs are known to as many potential sources as possible. There is also a desire to obtain an indirect benefit of keeping the Government procurement process open to public scrutiny and providing a fair chance of participating in the Government market to as many companies as possible [Ref. 8: p. 29].

In contrast, the commercial market in which the contractors operate to obtain their own purchased material is characterized by more sellers of substitute products and more competition. The contractors benefit from this in that they can preselect potential bidders from among known sources that they feel will provide the best product and service. This reduces the contractor's evaluation costs and risk of unacceptable contract performance. It also reduces the bid preparation costs to firms that do not have much, if any, chance of winning the contract.

The Government and most contractors specified two or more sources were needed to achieve adequate competition, while some of the contractors required at least three sources for competition. The differences in number of sources solicited

does not seem significant, considering the different goals and market structures facing the Government and the contractors.

Although there was substantial agreement on what was competition, there was disagreement on how to categorize some subcontracting actions, primarily follow-on to competition. This disagreement stems in part from the problem of how long after the initial competition does the benefit of the initial competition apply to subsequent buys of the same item from the same source. One of the primes considered the benefit to last about one year, the other considered the benefit to last indefinitely. The prime contractors want to consider follow-on to competition as a competitive action.

The Government now identifies follow-on to competition as a separate category of procurement action, distinct from being either competitive or non-competitive. The researcher would observe that this issue is more one of categorization than of definition. Follow-on actions usually occur in the production phase and there are other issues that are at least, if not more, important as competition. These issues include: supplier performance in meeting quality and delivery schedules, pricing history, and effect on the overall system of changing sources of the component.

The question of which category follow-on actions should be placed seems best considered on a case-by-case basis, considering the relatively few major subcontracts in the major weapon systems reviewed. The important idea is that

follow-on to competition actions have received some benefit from competition, and if not considered wholly competitive, at least they are now identified separately.

It is evident that the Government's definition of price and design/technical competition is acceptable and can be used when a common definition is necessary. Potentially the most frequent use of a common definition would be to measure the amount of subcontract competition. In this case, each of the contractor's procurement actions should be examined and categorized as being either competitive or non-competitive at the beginning of the contract.

C. ISSUES IN ACHIEVING AND INCREASING SUBCONTRACT COMPETITION AT THE PRIME CONTRACTOR LEVEL

The Government has four programs designed to enhance competition at the subcontractor level: CPSR, Consent to Subcontracts, Make-or-Buy, and Component Breakout. The Government uses its direct contractual relationship with the prime contractor to participate in these programs.

It is interesting to note there is a perception of little competition in the market for major weapon systems. These prime contractors' primary motivations to obtain competition are due to an incentive to reduce program costs. They felt these reduced costs were critical to keep the program competitive, to remain competitive themselves for eventual selection as the prime contractor, or to maintain their existing single/sole source status. Furthermore, the

programs that are used to introduce the effects of competition are not considered by the primes to be a major factor in determining the amount of subcontract competition conducted. One prime contractor stated that they did not avoid non-competitive subcontracts when the reasons could be fully documented. This would suggest that efforts to increase subcontract competition through greater emphasis on these programs may not be fully effective.

The prime contractors also use competition to minimize schedule risk by developing several suppliers for the same critical material. Although the primary purpose of this effort is to ensure delivery schedule compliance; clearly price competition benefits are available.

Finally, in some situations, it is just not in the best interest of the prime contractor to let a sole source develop due to the poor performance of that company. The subcontract management effort becomes difficult and frustrating as well as potentially jeopardizing the prime contractor's performance. The prime contractor's sensitivity to these potential situations seems sufficient motivation for the prime to avoid these situations.

Interestingly, none of the competition enhancing programs reinforce or take advantage of these motivators. Perhaps some effort should be put into developing programs that are more in line with these motivators. The prime contractors were also able to identify situations where competitive

subcontracting was advantageous. There are two Government efforts that would exploit both the prime contractors' motivations and expertise in identifying advantageous competitive subcontracting situations. These are: including the amount of subcontract competition proposed as a source selection criterion on prime contracts and the use of incentive or award fees. The additional source selection criterion would allow the potential prime contractor to weigh his internal benefits of subcontract competition against the potential risk of not remaining competitive for the prime contract. Perhaps the Make-or-Buy program could be modified to require a competition in subcontracting proposal for those items to be bought. Incentive or award fees would motivate the prime contractor to obtain double benefits of competing; those obtained from the competition and those obtained from the increased fees. There are some potential problems in using incentive fees. Some effort would have to be made to ensure the primary benefit received from competing was not solely the increased fees. There must be some way to ensure that actual benefits accrue to the Government as a result of the competition. This would prevent conducting competition merely for the sake of competition. Another consideration is the importance that the incentive fee structure be consistent with the overall program goals and objectives. This would ensure that some areas, such as reliability or logistical support would not be degraded.

There were many disincentives that prevented the prime contractors from obtaining more competition. The main source of these were problems inherent in the major weapons system market, overall program uncertainty in both program continuation and actual quantities. The prime contractors felt that with greater quantity certainty they could find more sources willing to bid, and thus obtain lower prices. These types of problems are generally recognized within the Government and some improvements, such as Multi-year Contracting, are being tried. However, the primes did state that this program uncertainty did motivate them to try to minimize costs to help ensure the program's survival through the budgeting process. It appears that the Government is obtaining some benefit from this uncertainty.

One prime contractor felt the Government was not interested in funding the development of second sources during the production phase. In this case, the prime recognized several opportunities for achieving competition and lower prices through second sourcing. The Government was not interested in providing the necessary funds to develop the additional source. The prime contractor is understandably unwilling to spend the funds himself given the yearly program uncertainty inherent in the budgeting process.

Other disincentives are the result of corporate policies, such as teaming agreements, desire to maximize benefits of dealing with existing qualified sources, and the desire

to maintain an excellent and mutually beneficial business relationship with a supplier. While all of these are legitimate concerns and logical reasons for not competing, there are some methods that the Government could use to motivate competition in these areas.

The two methods mentioned above, source selection criterion and incentive fees would apply here also. The Government would be forcing the prime contractors to, in effect, put a price tag on these policies, and then let the contractor bear the cost or penalties of not competing. Another method would be the use of directed competition. The primes stated that this would cause them to do more subcontract competition although they felt that they were already achieving a very high level of such competition. The threat of component breakout would be useful to achieve subcontract competition. There is the risk that if the prime contractor will not compete it, the Government will and provide it to the prime as Government-furnished equipment. This would reduce the prime contractor's profits, so the prime would probably choose competing the subcontract as the lesser of two evils in this case.

The results of this study showed that for some programs, a great deal of competition was conducted in the initial program stages. While no precise data were collected on the amount of competition currently being conducted on these major subcontracts, it was observed that the prime contractors

had placed nearly all subsequent orders with the original subcontractor on a follow-on to competition basis. The researcher did observe the effect of specification changes on one program. The changes were required to provide basically the same system with improved capabilities to another customer. The prime was successful in introducing competition for both new and existing components. This competition resulted in lower prices for the existing components.

The recent interest in the amount of prime contractor's subcontract competition stems from the current initiatives in the Executive Branch to increase the amount of competition in procurement. Since subcontracting represents a large portion of the procurement effort, it is felt that efforts should be made to increase competition in subcontracts as well [Ref. 1: p. 20]. The results of this study and the one conducted by the Army Procurement Research Office show that there is a wide range in the amount of competition conducted, depending upon the nature of the program [Ref. 2: p. 25]. This would suggest to the researcher that perhaps efforts to increase subcontract competition should be made on a case-by-case basis rather than by implementing broad procurement actions. The researcher also observed that where the material was being procured on a non-competitive basis, there were excellent reasons for so doing. While the amount of subcontracts awarded on a follow-on to competition basis during the production phase is high, arbitrary efforts to increase the

amount of competition must be avoided. The researcher observed many instances where other program goals were being met, in part at least, because of the benefits of remaining with one source. This is not to say that competition in subcontracts and other program goals are mutually exclusive, only that efforts to increase subcontract competition must be done with the specific goals and objectives of the program in mind.

D. ISSUES IN ACHIEVING AND INCREASING SUBCONTRACT COMPETITION AT THE SUBCONTRACTOR LEVEL

One of the differences between the Government-prime contractor relationship and the Government-subcontractor relationship is the lack of "privity of contract" between the Government and the subcontractors. The Government will not be able to directly influence the subcontractor in the same manner as the prime contractor. The Government, if wishing to modify subcontractor behavior, will have to either achieve it through overall policy (such as socio-economic programs) or through the prime contractor in the form of flow-down provisions.

This study showed that the primary motivators of subcontractors to compete were to reduce costs and increase profits. Most of them believed their market was highly competitive and their future growth depended in large part, upon themselves remaining competitive through reduced costs and increased technical knowledge gained through competition.

The implication for Government policy here is to, either directly or indirectly, try to maximize its use of the market forces at this level. This means the Government should insist that prime contractors compete more as discussed above and that the Government can participate directly in the market through the Component Breakout program. The problem here is that the Government's objectives for the Component Breakout program might be more socio-economic oriented, rather than the more direct benefits obtained from paying lower prices for its material.

The primary disincentives to competition found in this study were either internal in the form of the individual subcontractor's policies or external in the form of market conditions or customer imposed constraints.

Due to the lack of "privity of contract," the Government probably cannot exert much influence over the firm's internal policies. The exception to this is when the subcontractor is also a prime contractor to the Government on another program. When this is the case, some of the competitive policies of the Government may carry over to the method in which the company conducts its subcontracting. Several subcontractors, who were also prime contractors, mentioned that in many cases, they consistently performed their subcontract operations under the same terms as their prime contracts because it was too difficult to maintain separate systems. One subcontractor noted that even his strictly commercial subcontracting was reviewed by the Government during the CPSR.

Several of the subcontractors mentioned the lack of qualified suppliers due to the state-of-the-art and specialized application products required. There does not seem to be much the Government could do to affect this.

One of the customer imposed constraints was another reflection of the nature of major weapon system acquisition. Relatively small numbers of items required caused small production runs and discouraged several suppliers from making the necessary investment to participate in this market. The Government effort's noted above, such as Multi-Year contracting, would also help alleviate this situation.

Inadequate bid preparation time was also cited as reducing the amount of competition obtained by subcontractors. It was not clear if this was caused by the Government or by the prime contractor's management. If it is caused by a prime contractor's actions, then Government incentives for the prime to increase his subcontract competition should reduce this type of disincentive.

The only area where the Government can be of direct influence is by reducing the number of directed or restricted sources. Subcontractors stated they were unable to obtain maximum competition due to the number of directed or restricted sources and also indicated they felt that this was caused by the Government specifications. The Government could alleviate this situation by carefully reviewing specification packages to identify and eliminate overly restrictive specifications.

Subcontractors stated they used "standard industry" or "normal purchasing" practices for source selection procedures. The subcontractors also aggressively pursued new source development. This is reflected in the amount of competition, as measured in this study, obtained by the subcontractors. More than half of the subcontractors reported that they obtained competition in over 80% of their purchase actions exceeding $25,000.00. This would indicate that even though the prime contractor may stay with a particular supplier on a follow-on to competition basis, there is still a considerable amount of competition being conducted by that supplier.

E. SUMMARY

The Government definition of competition seems to be adequate for use as a common definition, when one is needed. Some types of purchase actions, such as follow-on to competition, may need to be defined as being either competitive or non-competitive on a case-by-case basis, although current Government policy is to place follow-on to competition actions in a separate category. There is potential for existing Government programs to cause increased subcontract competition at the prime contractor level, but there are also some other actions the Government could take that would exploit the prime contractor motivations, as determined by this study, to increase subcontract competition. These are: including the amount of proposed subcontract competition in the prime

contractor source selection criteria and using incentive fees. There appears to be a significant amount of competition conducted at the subcontractor level. The study showed there is one indirect action the Government could take to enhance the amount of competition conducted at this level: reducing the number of directed or restricted sources.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

Conclusion #1. The Government's definition of competition can be used as a common definition of competition. The prime contractors and subcontractors examined during this study agreed with the Government definition of design/technical competition with only minor exceptions. As discussed in Chapter III, they also basically accepted the Government's definition of price competition, essentially because of the use of this definition in determining the requirement for cost and pricing data.

Conclusion #2. Not all procurement actions that prime contractors and subcontractors consider to be competitive are compatible with the Government's definition of competition. As identified in Chapter III, most of the disagreement is centered around follow-on to competition actions. The prime contractors felt these actions should be considered competitive. The Government has established separate categories in their procurement data collection system to recognize the unique aspects of this type of action, and now considers it neither a competitive nor a non-competitive action.

Conclusion #3. A significant amount of subcontract competition is conducted by prime contractors in the early stages of program development. As discussed in Chapters III

and VI, this occurs because definitive specifications have not been determined, and there are still opportunities to consider alternatives. Once the specifications become definitized, it is not only more difficult to get subcontract competition, but the prime is more reluctant to try to get a different source. The prime contractor's goals such as cost, reliability, and maintainability are well-established and the prime is reasonably assured that the existing subcontractor will perform adequately to allow the prime contractor to achieve these goals. Subcontract competition is difficult due to the risk of changing sources and the financial costs of developing a second source. As a result, during the production phase, prime contractors tend to remain with those subcontractors selected during the initial stages and award subsequent subcontracts on a follow-on to competition basis. This characteristic is very similar to competition in the acquisition of the major weapon system itself during the production stages. The lack of competition during production is caused, at least in part, by the inherent characteristics of the major weapon system acquisition process. There are opportunities for additional subcontract competition in the production phase, but the Government may have to take direct contractual action to cause the competition to occur.

Conclusion #4. Surveillance systems, such as Contractor Purchasing System Review (CPSR), and contract clauses to increase subcontract competition do not seem to be effective

in motivating prime contractors to obtain subcontract competition. The prime contractor statements discussed in the section on prime contractor motivations in Chapter IV confirm this. While these systems may not result in increased subcontract competition, they do require that non-competitive actions be fully justified and documented. From this study, efforts to increase subcontract competition through increased emphasis on these systems does not appear to be effective.

Conclusion #5. Prime contractors are quite motivated to obtain subcontract competition when it is consistent with achieving their corporate goals. The role of corporate goals as motivators to compete was brought out in Chapter IV. Their goals are to reduce costs through subcontract competition in order to: (1) help ensure the program's survival through the budgetary process, and (2) help maintain the contractor's existing status either as a strong competitor for eventual selection as the prime contractor or as the existing single source. Methods of increasing subcontract competition that utilize these motivations should effectively increase the amount of subcontract competition conducted by prime contractors.

Conclusion #6. There are two primary methods by which the Government can take advantage of contractor motivations to compete subcontracts. As seen from the analysis in Chapter VI, these are: (1) including the amount of subcontract competition proposed as one of the prime contractor source

selection criteria, and (2) using award fees to increase profits. In many cases, the prime contractor has the knowledge to determine the most effective amounts of components to compete.

Conclusion #7. A significant amount of subcontract competition is conducted by first tier subcontractors. A majority of first tier subcontractors reported obtaining over 80% of their required material competitively. This appears to be a higher level of competition than achieved by prime contractors. Competition is continuously conducted by subcontractors and is a more permanent characteristic of competition at this level, rather than occurring only during the early stages of program development.

Conclusion #8. There are several opportunities for the Government to increase subcontract competition at both the prime contractor and subcontractor levels. Increases at the prime contractor level can be achieved in both the initial program stages and the production phase. Government actions include: reinforcement of the primes' motivations to achieve corporate goals, providing funding for the development of additional sources, reducing the number of directed sources, and requiring the prime contractor to increase the amount of subcontract competition on a program basis through contractually established goals. There is less opportunity for direct Government action to increase competition at the subcontract level. The primary method identified during

this study was reduction in the number of Government-directed sources.

B. RECOMMENDATIONS

Recommendation #1. The Department of Defense should promulgate guidance for classifying contractor purchasing practices as either competitive or non-competitive. Although the Government definition of competition is commonly accepted, there is considerable controversy over the classification of procurement actions. This guidance could be promulgated in a revision to Part 4, "Administrative Matters," of the Department of Defense Supplement to the Federal Acquisition Regulations.

Recommendation #2. Government efforts to increase the amount of subcontract competition obtained by prime contractors should reinforce the prime contractors' motivations to obtain competition and not rely on existing programs. Broad policy statements concerning the benefits and desirability of subcontract competition should be promulgated while the use of standardized across-the-board methods and fixed goals would be inappropriate. Subcontract competition goals and the methods used to achieve these goals should be tailored to the individual program. These tailored goals and methods should be incorporated into the terms and conditions of the individual contracts.

Recommendation #3. The Government should maintain a diligent effort to eliminate Government-imposed barriers to

subcontract competition, such as directed sources and lack of funding for the development of additional sources. These barriers were determined to have a significant adverse impact on the amount of subcontract competition conducted. Directed sources could be reduced through increased Government efforts to acquire data rights. Funding requirements for additional source development should be identified and requested during initial program stages.

C. ANSWERS TO RESEARCH QUESTIONS

1. What are the nature and extent of competitive actions by Department of Defense prime contractors and their subcontractors in 'non-competitive' acquisitions of major weapon systems? This study found that both prime contractors and their subcontractors: a. conduct a substantial amount of subcontract competition, b. have procurement practices that are compatible with the Government definition of competition, and c. have strong internal motivation to conduct subcontract competition. Existing Government methods of encouraging prime contractors to obtain subcontract competition do not have a significant impact on the amount of competition achieved. There are methods the Government could use to obtain more subcontract competition.

2. How much is ultimately awarded on a competitive basis by these prime contractors and their subcontractors? As shown in Chapter III, there is a significant amount of competition conducted by both prime contractors and their

subcontractors. While the prime contractors conduct most of their competition at the initial stages, the subcontractors obtain competition on a continuous, routine basis.

3. What types of actions do the prime contractors and their subcontractors consider to be competitive and are these actions compatible with the Government's definition of competition? This was discussed in Chapters IV and V. Actions prime contractors considered as competitive are price competition, competitive negotiation, follow-on to competition, and internal technical reviews. Of these, price competition and competitive negotiations were fully consistent with the Government's definition. The subcontractors were less specific, but generally described methods and actions quite similar to those of the prime contractors.

4. Is there a working definition of competition that can be used to describe "effective competition" and would this definition be consistent with the Government definition of competition? As brought out in Chapters III and VI, the Government's definition of competition is widely accepted and can be used as a common definition. What constitutes "effective competition" can be determined on a case-by-case basis and would be reflected by the types of purchase actions classified as competition under the terms of the contract.

5. What is current Department of Defense policy on prime contractors' competing among their subcontractors and does this policy have an effect on the amount of competition

conducted by prime contractors? Current Department of Defense policy, as discussed in Chapters II and IV, is for prime contractors to achieve maximum subcontract competition consistent with other contract requirements and objectives. As brought out in Chapter IV, this policy, as currently implemented, does not have a substantial impact on the amount of subcontract competition conducted by the prime contractors.

6. What motivates prime contractors and their subcontractors to compete their requirements and does current Department of Defense policy reinforce these motivations? As discussed in Chapter IV, this study found prime contractors were extremely motivated to compete if they could achieve internal corporate goals thus reducing costs and maintaining the competitiveness of the company. Current Department of Defense subcontracting policy is not consistent with these goals.

D. AREAS OF FURTHER STUDY

1. With the increased attention on the amount of subcontract competition, there will probably be efforts to establish systems to measure the extent of such competition. Although the recent OFPP study recommended that no additional data collection systems were necessary, there is still the possibility that Congress or other organizations may decide to require the collection of this data. The researcher found very little concern with measuring the amount of subcontract

competition for large subcontracts (over $500,000), such as the ones in this study. These contracts are relatively few in number and already receive focused management attention. A measurement problem could exist on smaller subcontracts and for purchases of common material that is used by several programs being built by the same prime contractor. In addition to the need for a formal data collection system, a method of allocating the amount of competition to each of the individual programs must be devised. The design of such a system requires further study.

2. Most of the subcontractor respondents to this study were also prime contractors. While this is probably indicative of the degree of concentration within the defense industry, there are numerous subcontractors who are not prime contractors. As noted in this study, the terms and conditions of the prime contract tends to influence subcontracting methods. Subcontractors who do not have a prime contract with the Government may have a different perspective on subcontract competition. A study should be done concentrating on those subcontractors who are not prime contractors.

APPENDIX A

QUESTIONS USED IN PRIME CONTRACTOR INTERVIEWS

1. What is your definition of competition and how does it differ from the Government's definition?

2. What prevents you from doing more subcontract competition?

3. What would motivate you to do more competition?

4. What could the Government do to motivate you to obtain more competition?

5. What Government policies (i.e., contract provisions) prevent you from obtaining more competition?

6. What, if any, benefits does your company derive from competition and how important are these benefits to you?

7. Describe the purchase practices that your company uses that you consider to be competitive, but they do not meet the Government definition of competition.

8. What are the primary reasons for your having single or sole source contracts?

9. What do you do to encourage competition among your subcontractors?

10. What existing contract provisions encourage you to maximize the use of competition?

11. Do you maintain a data base on your subcontractors and if so, what information do you maintain in the data base?

12. Do you consider your competitive practices and resulting competitive subcontractor base to be a valuable asset to the company? If so, why?

APPENDIX B

SUBCONTRACTOR QUESTIONNAIRE

The Government recognizes two forms of competition: 1) price competition and 2) technical competition. The Government defines price competition to be where offers are solicited from all known sources and at least two responsible offerors who can satisfy the requirement independently contend for the contract by submitting responsive offers. Furthermore, the low offeror cannot have such a competitive advantage that he is practically immune to competitive forces and the lowest price offered is reasonable. The Government defines design or technical competition to be where two or more qualified sources of supply are invited to submit design or technical proposals, with the contract award based primarily upon this factor, rather than price alone.

What is your company's definition of competition and how does it differ from the above definitions? Please write your definition of competition and explain any differences in the space below.

Please compare YOUR DEFINITION with the GOVERNMENT'S DEFINITION to answer the next four questions. (If there is no difference, please answer using only the government's definition.)

	YOUR DEFINITION	GOV'T DEFINITION
1) Approximately what percentage of the goods and services that you buy is obtained on a competitive basis? (Include only subcontracts over $25,000) (Circle one in each column)	0-19% 20-39% 40-59% 60-79% above 80%	0-19% 20-39% 40-59% 60-79% aboge 80%
2) What prevents you from getting more of each type of competition in your subcontracting?		

YOUR DEFINITION GOV'T DEFINITION

3) What could the prime contractor do that would motivate you to obtain more competition in your subcontracting?

4) What other things, besides prime contractor actions, would motivate you to obtain more competition among your subcontractors?

GENERAL QUESTIONS

1) What, if any, benefits does your company derive from competing your requirements and how important are these benefits to you?

2) Are you a prime contractor for any DOD contracts and, if so, please describe any differences in your competitive procedures between those used for your commercial business and those used for your Government business.

3) Describe the purchasing practices that your company uses that you consider to be competitive, but DO NOT MEET the Government definition of competition.

4) Describe the purchasing practices that your company uses that you consider to be competitive, and MEET the Government definition of competition.

5) What are the primary reasons (at least four) for your having single and/or sole source subcontractors?

6) What do you think are the three most significant barriers to your obtaining more effective competition among your subcontractors?

7) What actions do you take that encourages or increases effective competition among your subcontractors?

8) Do you maintain a data base on your subcontractors and, if so, what information do you maintain in the data base?

Thank you very much for your time and effort. Please return by 13 April to:

LT Stephen Smith, SC, USN
SMC 1889
Naval Postgraduate School
Monterey, CA 93943
Ph 408-646-3039

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